

WHAT IS CLAIMED IS:

1. . A composition, comprising:

at least one biomolecule; and

5 an electromagnetic energy absorbing species associated therewith.

2. The composition of claim 1, wherein said biomolecule is associated with said electromagnetic energy absorbing species via a chemical linker.

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3. The composition of claim 2, wherein said chemical linker is an avidin/biotin link.

4. The composition of claim 1, wherein said biomolecule is associated with said electromagnetic energy absorbing species via a chemical bond.

15 5. The composition of claim 1, wherein said biomolecules form a dimer via a chemical bond, said dimer associated with said electromagnetic energy absorbing species via said same chemical bond or via a different chemical bond.

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6. The composition of claim 1, wherein said biomolecules are associated with said electromagnetic energy absorbing species via a physical process.

5 7. The composition of claim 6, wherein the physical process is diffusion.

8. The composition of claim 1, wherein the biomolecule is a protein, a carbohydrate, or a lipid or a combination thereof.

10 9. The composition of claim 1, wherein the biomolecule is a pharmaceutical, a biologic, a biomaterial, or a diagnostic or a combination thereof.

15 10. The composition of claim 1, wherein the electromagnetic energy absorbing species is a susceptor.

11. The composition of claim 10, wherein the susceptor is a metal.

20 12. The composition of claim 10, wherein the susceptor forms a dipole.

13. The method of claim 1, wherein said electromagnetic energy absorbing species comprises matter with non-zero electrical conductivity.

14. The method of claim 13, wherein said matter is diamagnetic, paramagnetic, or ferromagnetic.

15. The method of claim 13, where said matter is an ionomer, a 5 conducting polymer, an alkali metal, a transition metal, a lanthanide, or a metalloid or a combination thereof.

16. The method of claim 13, where said matter is colloidal or non- colloidal gold, silicon, cadmium selenide, cadmium sulfide, ruthenium, indium 10 phosphide, indium arsenide, gallium arsenide, gold maleimide, gallium phosphide, hydroxysuccinimidyl gold, nickel-copper, nickel-palladium, palladium-cobalt, nickel-silicon, stainless steel, iron oxide, ferrite, titanium, Phynox, palladium/cobalt alloys, nitinol, titanium, titanium alloys, zirconium, gadolinium, aluminum oxide, dysprosium, cobalt alloys, nickel, gold, palladium, tungsten, or alloys of materials 15 from this group.

17. The method of claim 16, where said matter is a metal nano- or micro-particle, a semiconducting nano- or micro-particle, a magnetic nano- or micro-particles, a polystyrene encapsulated metal particle, a buckminsterfullerene, 20 or liposome encapsulated metal particles.

18. The composition of claim 1, wherein the electromagnetic energy absorbing species is a dye.

19. The composition of claim 1, wherein the electromagnetic energy absorbed is laser generated or is radiofrequency.

5 20. The composition of claim 1, wherein the electromagnetic energy is inductively applied to said electromagnetic energy absorbing species.

10 21. The composition of claim 1, wherein the biomolecule, the electromagnetic energy absorbing species or both undergo a change in state upon application of electromagnetic energy to said composition.

15 22. The composition of claim 21, wherein the change in state is a cleaved bond or denaturation.

20 23. The composition of claim 1, further comprising a liposome, said composition incorporated therein.

24. A composition, comprising:
at least one biomolecule; and
a susceptor associated therewith.

25. The composition of claim 24, wherein said biomolecule is associated with said susceptor via a chemical linker.

26. The composition of claim 25, wherein said chemical linker is an avidin/biotin link.

5 27. The composition of claim 24, wherein said biomolecule is associated with said susceptor via a chemical bond.

10 28. The composition of claim 24, wherein said biomolecules form a dimer via a chemical bond, said dimer associated with said susceptor via said same chemical bond or via a different chemical bond.

29. The composition of claim 24, wherein said biomolecules are associated with said susceptor via a physical process.

15 30. The composition of claim 29, wherein the physical process is diffusion.

31. The composition of claim 24, wherein the biomolecule is a protein, a carbohydrate, or a lipid or a combination thereof.

20 32. The composition of claim 24, wherein the biomolecule is a pharmaceutical, a biologic, a biomaterial, or a diagnostic or a combination thereof.

33. The composition of claim 24, where said susceptor is a metal, a metal nano- or micro-particle, a semiconducting nano- or micro-particle, a magnetic nano- or micro-particles, a polystyrene encapsulated metal particle, a buckminsterfullerene, or liposome encapsulated metal particles.

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34. The composition of claim 33, wherein the metal is colloidal or non-colloidal gold, silicon, cadmium selenide, cadmium sulfide, ruthenium, indium phosphide, indium arsenide, gallium arsenide, gold maleimide, gallium phosphide, hydroxysuccinimidyl gold, nickel-copper, nickel-palladium, palladium-cobalt, nickel-10 silicon, stainless steel, iron oxide, ferrite, titanium, Phynox, palladium/cobalt alloys, nitinol, titanium, titanium alloys, zirconium, gadolinium, aluminum oxide, dysprosium, cobalt alloys, nickel, gold, palladium, calcium salts, magnesium salts, or tungsten or alloys thereof.

15 35. The composition of claim 24, wherein the susceptor forms a dipole.

20 36. The composition of claim 24, wherein the biomolecule, the electromagnetic energy absorbing species or both undergo a change in state upon application of electromagnetic energy to said composition.

37. The composition of claim 36, wherein the change in state is a cleaved bond or denaturation.

38. The composition of claim 24, wherein said biomolecule(s) comprise at least one protein, said composition further comprising a liposome wherein said protein(s) and said susceptor are incorporated therein.

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39. The composition of claim 38, further comprising a pharmaceutical incorporated into said liposome.

40. A method for increasing the energy of biomolecules
10 comprising the steps of

associating the biomolecules with an energy absorbing substance to form the composition of claim 1; and,

applying electromagnetic energy to said composition wherein the electromagnetic energy absorbed by said absorbing species is transferred to said
15 biomolecules thereby increasing the energy thereof.

41. The method of claim 40, further comprising:
accelerating a biochemical reaction having said biomolecules as reactants via said increase in energy.

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42. The method of claim 41, wherein said biochemical reaction results in a conformational change in said biomolecules.

43. The method of claim 42, wherein said conformational change is denaturation.

44. The method of claim 42, wherein said biochemical reaction is 5 enzyme catalyzed.

45. The method of claim 44, wherein said biochemical reaction is a polymerase chain reaction or an enzyme-linked immunosorbent assay.

10 46. The method of claim 40, wherein said biomolecules are in tissue or are *in vitro*.

47. The method of claim 40, wherein said electromagnetic energy is radiofrequency

15 48. The method of claim 40, wherein said electromagnetic energy has a frequency from about 100 kHz to 40 GHz.

49. The method of claim 48, wherein said electromagnetic energy 20 has a frequency from about 100 kHz to 10 GHz.

50. The method of claim 40, wherein said electromagnetic energy generates a magnetic field.